

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (previously presented): A titanium oxide-based photocatalyst which is characterized by comprising a titanium oxide and an additional metal compound, and developing a photocatalytic activity by irradiation with visible light, the additional metal compound comprising at least one metal halide.

Claims 2-3 (cancelled).

Claim 4 (previously presented): The titanium oxide-based photocatalyst as set forth in claim 1 wherein the content of the additional metal compound as a metal is at least 0.1 mass % and at most 300 mass % based on the titanium oxide.

Claim 5 (original): A titanium oxide-based photocatalyst which is characterized by containing a metal halide in titanium oxide and having a thermal desorption spectrum in which a peak of a molecular ion or a fragment ion of a halogen-containing substance appears at a temperature of 623 K or higher.

Claim 6 (previously presented): The titanium oxide-based photocatalyst as set forth in claim 1 wherein the metal is at least one selected from Ti, Si, V, Sn, Sb, W, Nb, Bi, P, Mo, Cs, Ge, As, and Ce.

Claim 7 (previously presented): The titanium oxide-based photocatalyst as set forth in claim 1 wherein the halide is a chloride.

Claim 8 (original): A titanium oxide-based photocatalyst developing a photocatalytic activity by irradiation with visible light, which is characterized by having an ESR

spectrum measured at a temperature of at least 5 K in which a peak is observed in the range in which the g value is 1.950 - 2.030 when irradiated with visible light, that peak not being substantially observed in the dark.

Claim 9 (original): A titanium oxide-based photocatalyst developing a photocatalytic activity by irradiation with visible light, which is characterized by having an ESR spectrum measured at room temperature in a substantially oxygen-free atmosphere in which the highest peak observed in the range in which the g value is 1.950 - 2.030 when irradiated with visible light has a peak intensity with a half life of at least 3 minutes after the irradiation with visible light is stopped.

Claim 10 (previously presented): The titanium oxide-based photocatalyst as set forth in claim 8 which has an ESR spectrum measured at a temperature lower than 77 K in which a peak appears in the range in which the g value is 1.986 - 1.994.

Claim 11 (previously presented): The titanium oxide-based photocatalyst as set forth in claim 1 wherein the titanium oxide has absorptivity for visible light.

Claim 12 (previously presented): The titanium oxide-based photocatalyst as set forth in claim 1 wherein the titanium oxide has oxygen defects.

Claim 13 (previously presented): The titanium oxide-based photocatalyst as set forth in claim 1 wherein the primary crystal structure of the titanium oxide is anatase.

Claim 14-16 (cancelled).

Claim 17 (previously presented): A titanium oxide-based photocatalyst prepared by a method for the preparation of a titanium oxide-based photocatalyst characterized in that titanium oxide and/or its precursor is brought into contact with a reactive medium containing a metal halide of the formula MX_n or MOX_n (wherein M = a metal, X = a halogen, and n = an integer).

Claim 18 (previously presented): A photocatalytic functional product characterized by comprising a substrate having a titanium oxide-based photocatalyst as set forth in claim 1 deposited on a surface of the substrate.

Claim 19 (previously presented): A photocatalytic functional product characterized by comprising a substrate having a film which comprises a titanium oxide-based photocatalyst as set forth in claim 1 and a binder component formed on a surface of the substrate, the content of the photocatalyst in the film being 5 - 95 mass %.

Claim 20 (previously presented): A photocatalyst dispersion characterized by comprising a titanium oxide-based photocatalyst as set forth in claim 1 dispersed in a solvent.

Claim 21 (original): A photocatalyst dispersion as set forth in claim 20 wherein the photocatalyst has an average particle diameter of at most 500 nm.

Claim 22 (previously presented): A photocatalytic coating fluid characterized by comprising a titanium oxide-based photocatalyst as set forth in claim 1 in a solvent.

Claim 23 (previously presented): A photocatalytic coating fluid characterized by comprising a titanium oxide-based photocatalyst as set forth in claim 1 and a binder in a solvent, the content of the titanium oxide-based photocatalyst being in the range of 5 - 95 mass % based on the total nonvolatile content in the fluid.

Claim 24 (previously presented): A photocatalytic coating fluid characterized in that it is prepared using a photocatalyst dispersion as set forth in claim 21.

Claim 25-37 (cancelled).